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Education

Ph.D., School of Automation, Beijing Institute of Technology, Beijing, 2012.9-2019.1. Adviser: Chen Chen and Bin Xin.

Visiting Scholar (Joint Ph.D. Student), Center for Applied Optimization, Industrial and Systems Engineering, University of Florida, Gainesville, FL, 2016.9-2017.9. Adviser: Panos M. Pardalos.

B.Eng. in Automation, Beijing Institute of Technology, Beijing, 2008.9-2012.6.

B.Eng. in Electronic and Information Engineering, Exchange Student, The Hong Kong Polytechnic University, Hong Kong, 2011.1-2011.6.

Research Interests

Railway Scheduling, Evolutionary Computation, Optimization under Uncertainty, Multi-objective Optimization.

Publications

Papers under review/revision

S. Ding, R. Wang, X. Zhou, Y. Ren, K. Huang*. "High-Speed Railway Train Timetable Rescheduling in Case of a Stochastic Section Blockage". *2021 Chinese Automation Congress (CAC)*, 2021, submitted.

S. Ding*, T. Zhang, R. Wang, C. Zhang, S. Lu, B. Xin*. "A Comparative Study on Evolutionary Algorithms for High-Speed Railway Train Timetable Rescheduling Problem". *The 7th International Workshop on Advanced Computational Intelligence and Intelligent Informatics (IWACIII2021)*, 2021, submitted.

L. Yan, Q. Zhang*, R. Wang, S. Ding. "A Train Operation Situations Analysis Approach based on Dynamics". *Tiedao Yunshu Yu Jingji/Railway Transport and Economy*, 2021, revise.

L. Yan, Q. Zhang*, S. Ding, R. Wang. "A Bi-Objective High-Speed Railway Train Rescheduling Problem". *Zhongguo Tiedao Kexue/China Railway Science*, 2021, revise.

R. Wang, Q. Zhang*, T. Zhang, T. Wang, S. Ding. "An Intelligent Rescheduling Approach of High-speed Train Operation based on Reinforcement Learning". *Zhongguo Tiedao Kexue/China Railway Science*, 2021, submitted.

J. Wu, C. Pu*, S. Ding, G. Cao, P. M. Pardalos. "NC-MOPSO: A network centrality based multi-objective particle swarm optimization for transport optimization on networks". *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, 2020, revise.

J. Cai, Z. Peng*, S. Ding, J. Sun. "Problem specific MOEA/D for robust resource scheduling of multi-agent system for area searching". *Computers & Operation Research*, 2020, revise.

Book

S. Ding, C. Chen, Q. Zhang, B. Xin, P. M. Pardalos. *Metaheuristics for Resource Deployment under Uncertainty in Complex Systems*. Boca Raton and London, CRC Press, 2021.

Journal Articles

J. Cai, Z. Peng*, S. Liao, S. Ding. "A multi-mode multi-skill project scheduling reformulation for reconnaissance mission planning". *SCIENCE CHINA Information Sciences*, 2022, 65(6), 169201.

X. Wu, C. Chen*, S. Ding. "A modified MOEA/D algorithm for solving bi-objective multi-stage weapon-target assignment problem". *IEEE Access*, 2021, 9, 71832-71848.

J. Cai, Z. Peng*, S. Ding, J. Sun. "Problem-specific multi-objective invasive weed optimization algorithm for reconnaissance mission scheduling problem". *Computers & Industrial Engineering*, 2021, 157, 107345.

L. Yan, T. Zhang, Y. Gao, R. Wang, S. Ding*. "Reliability analysis of station autonomous computer system based on fuzzy dynamic fault tree and Markov model". *Engineering Reports*, 2021, accepted.

C. Chen, X. Wu*, J. Chen, P. M. Pardalos*, S. Ding. "Research on dynamic grouping of heterogeneous agents for exploration and strike missions". *Frontiers of Information Technology & Electronic Engineering*, 2020, accepted.

Y. Sun, Q. Zhang*, Z. Yuan, Y. Gao, S. Ding. "Quantitative analysis of human error probability in high-speed railway dispatching tasks". *IEEE Access*, 2020, 8, 56253-56266.

W. Xu, C. Chen*, S. Ding, P. M. Pardalos. "A bi-objective dynamic collaborative task assignment under uncertainty using modified MOEA/D with heuristic initialization". *Expert Systems with Applications*, 2020, 140, 112844.

Q. Zhang, Z. Yuan*, L. Yan, T. Zhang, Y. Miao, S. Ding. "A Railway Train Number Tracking Method Using a Prediction Approach". *IEEE Access*, 2019, 7, 138288-138298.

S. Ding, C. Chen*, B. Xin, P. M. Pardalos. "A bi-objective load balancing model in a distributed simulation system using NSGA-II and MOPSO approaches". *Applied Soft Computing*, 2018, 63, 249-267.

S. Ding, C. Chen*, B. Xin, J. Chen, "Status and progress in deployment optimization of firepower units". *Kongzhi Lilun Yu Yingyong/Control Theory and Applications*, 2015, 32(12), 1569-1581.

S. Ding, C. Chen*, J. Chen, B. Xin, "An Improved Particle Swarm Optimization Deployment for Wireless Sensor Networks". *Journal of Advanced Computational Intelligence and Intelligent Informatics*, 2014, 18(2), 107-112.

Proceedings

S. Ding, Q. Zhang*, Z. Yuan. "An under-approximattion for the robust uncertain two-level cooperative set covering problem". *2020 59th IEEE Conference on Decision and Control (CDC)*, Jeju Island, Republic of Korea. IEEE, 2020: 1152-1157.

J. Cai, Z. Peng*, S. Ding, J. Sun. "A Robust Genetic Algorithm to Solve Multi-Skill Resource Constrained Project Scheduling Problem with Transfer Time and Uncertainty Skills". *2020 IEEE 16th International Conference on Control & Automation (ICCA)*, Sapporo, Hokkaido, Japan. IEEE, 2020: 1584-1589.

Y. Wei, S. Ding, H. Fang*, X. Zeng, Q. Yang, B. Xin. "Distributed Nonsmooth Robust Resource Allocation with Cardinality Constrained Uncertainty". *2019 Chinese Control Conference (CCC)*, Guangzhou, China. IEEE, 2019: 5758-5763.

S. Sun*, S. Ding. "Bunker hedging with expected loss control by buffered probability of exceedance and conditional value-at-risk". *In Annual Conference of the International Association of Maritime Economists (IAME)*, Kyoto, Japan.

Z. Sun*, S. Ding. "Research on Standardized Development Method of Scenario for Combat Information Simulation System". *In Proceedings of 33rd Chinese Control Conference (CCC)*, Nanjing, China. IEEE, 2014: 6298-6303.

S. Ding, J. Chen, C. Chen*, B. Xin. "An improved deployment algorithm for wireless sensor networks based on Particle Swarm Optimization". *In Proceedings of the Ninth China-Japan International Workshop on Internet Technology and Control Applications*, 2013: 138-142.

Reviewer for Journals

IEEE Transactions on Cybernetics

Applied Soft Computing

IEEE Transactions on Circuits and Systems II: Express Briefs

Annals of Mathematics and Artificial Intelligence

IEEE Access

Journal of Advanced Computational Intelligence and Intelligent Informatics

Reviewer for Conferences

Chinese Control Conference (CCC)

Chinese Control and Decision Conference (CCDC)

Research Experience

Principal Investigator, Research on the train scheduling and decision making system under uncertainty, Foundation of China Academy of Railway Sciences Corporation Limited, No. 2019YJ071, 2019.10-2020.12.

Participant, Theory and methodology of autonomous cooperative operation control in high-speed railway, National Natural Science Foundation of China, No. U1934220, 2020.01-2023.12.

Participant, Command control and decision making in multi platform under uncertainty, National Natural Science Foundation of China, No. 61773066, 2018.01-2021.12.

Participant, Research on the dynamic fire allocation in network-centric warfare, National Natural Science Foundation of China, No. 61304215, 2014.01-2016.12.

Participant, Optimization and decision making in Networked Fire Control System Deployment under dynamic environment, National Natural Science Foundation of China, No. 61203181, 2013.01-2015.12.

Participant, Dynamic deployment optimization analysis in Networked Fire Control System, Fundamental Research Funds for Beijing Institute of Technology, No. 20120642004, 2013.01-2013.12

Teaching

Beijing Institute of Technology

Final Year Project (B.Eng.): Instructor Assistant, 2014.

Wings' Project funded by Beijing Municipal Commission of Education: Instructor, 2013-2014.

Honors and Awards

Innovation Award (second place) from the Ministry of Industry and Information Technology, 2018

Outstanding Reviewer, Applied Soft Computing (Elsevier), 2018.

JACIII Young Researcher Award, 2017.

Second Prize in National Postgraduate Mathematic Contest in Modeling, 2013.

Outstanding Postgraduate Student, 2012-2013.

Third Prize in the Programming Contest in Beijing Institute of Technology, 2012/2013.

Second Prize in National Undergraduate Electronic Design Contest, 2011.

Five-time recipient of People's Scholarship in Beijing Institute of Technology, 2008-2012.